

CLAIM AMENDMENTS:

1. (Canceled).

2. (Currently amended) A semiconductor device production method ~~as set forth in claim 1, further comprising the step of~~ for producing a semiconductor device by forming an impurity region in a front surface of a silicon carbide semiconductor substrate, the method comprising the steps of:

holding the silicon carbide semiconductor substrate by a susceptor of carbon with a rear surface of the substrate in contact with the susceptor;

bringing a heating member of carbon into contact with the front surface of the silicon carbide semiconductor substrate selectively ion-implanted with an impurity element; and

heat-treating the silicon carbide semiconductor substrate with the heating member in contact with the front surface of the silicon carbide semiconductor substrate, wherein

the heating member contacting step is the step of bringing the heating member into contact with the front surface of the silicon carbide semiconductor substrate held by the susceptor, [[and]]

the heat treating step is the step of causing the susceptor and the heating member to generate heat through high frequency induction heating for heat treatment, and

the susceptor has a surface coated by high purity carbon CVD.

3. (Currently amended) A semiconductor device production method ~~as set forth in claim 1, for producing a semiconductor device by forming an impurity region in a front surface of a silicon carbide semiconductor substrate, the method comprising the steps of:~~

bringing a heating member of carbon into contact with the front surface of the silicon carbide semiconductor substrate, the front surface being selectively ion-implanted with an impurity element; and

heat-treating the silicon carbide semiconductor substrate with the heating member that is in contact with the front surface of the silicon carbide semiconductor substrate, wherein

the heating member contacting step is the step of holding the silicon carbide semiconductor substrate by a susceptor of carbon serving that serves as the heating member, so that [[with]] the front surface of the substrate is in contact with the susceptor, and

the susceptor has a surface coated by high purity carbon CVD.

4. (Currently amended) [[A]] The semiconductor device production method as set forth in claim 3, wherein the heat treating step is the step of causing the susceptor to generate heat through high frequency induction heating for heat treatment.

5. (Currently amended) [[A]] The semiconductor device production method as set forth in claim 3, wherein the heat treating step is the step of causing a heater built in the susceptor to generate heat for heat treatment.

6. (New) A semiconductor device production method for producing a semiconductor device by forming an impurity region in a front surface of a silicon carbide semiconductor substrate, the method comprising:

holding the substrate by a susceptor comprised of carbon with a rear surface of the substrate in contact with the susceptor;

bringing a heating member comprised of carbon into contact with the front surface of the substrate selectively ion-implanted with an impurity element; and
heat-treating the substrate with the heating member and the susceptor.

7. (New) The method of claim 6, wherein, during the heat treating step, the heating member and the susceptor generate heat through high frequency induction heating that uses a magnetic field applied to the heating member and the susceptor, and the heating member and the susceptor heat the substrate by the generated heat.

8. (New) The method of claim 7, wherein, during the heat treating step, a temperature of the heating member is higher than a temperature of the silicon carbide semiconductor substrate, thereby preventing sublimation of atoms from the front surface of the heat the silicon carbide semiconductor substrate.